

Amendments to the Claims

Claim 1 (original): A client apparatus for preparing streaming media received over a non-deterministic delay network for playback or distribution which comprises:

a buffer which stores data corresponding to the streaming media;

a time-scale modification system that time-scale modifies data output from the buffer at a time-scale modification playback rate;

a rate determiner that determines the time-scale modification playback rate over an interval to control an amount of data in the buffer; and

a user interface which receives a user requested time-scale modification playback rate.

Claim 2 (original): The client apparatus of claim 1 wherein the rate determiner determines the time-scale modification playback rate utilizing the user requested time-scale modification playback rate.

Claim 3 (original): The client apparatus of claim 2 wherein the user interface further comprises a graphical interface.

Claim 4 (original): The client apparatus of claim 3 wherein the graphical interface further displays one or more of the user requested time-scale modification playback rate, and the time-scale modification playback rate.

Claim 5 (currently amended): The client apparatus of claim ~~[[5]]~~ 4 wherein the graphical interface further displays a range of time-scale modification playback rates which are determined to provide uninterrupted playback.

Claim 6 (original): The client apparatus of claim 1 wherein the rate determiner determines the time-scale modification playback rate as a non-linear function of the amount of data.

Claim 7 (currently amended): A method for preparing streaming media received over a non-deterministic delay network at a client device for playback or distribution which comprises ~~the steps of~~:

receiving the streaming media at the client device;

determining a measure of an arrival rate and a measure of a data consumption rate of the received streaming media;

determining a measure of mismatch between the arrival measure and the consumption measure; and

utilizing time-scale modification to mitigate the effects of the mismatch;

wherein;

the arrival measure is determined as a function of an arrival rate of data in a buffer; and

the consumption measure is determined as a function of a use rate of data by a playback system or a distribution system.

Claim 8 (currently amended): A method for preparing streaming media received over a non-deterministic delay network at a client device for playback or distribution which comprises ~~the steps of~~:

receiving the streaming media at the client device;

determining a measure of an arrival rate and a measure of a data consumption rate of the received streaming media;

determining a measure of mismatch between the arrival measure and the consumption measure; and

utilizing time-scale modification to mitigate the effects of the mismatch;

wherein the arrival rate is determined using time-stamps for arriving data.

Claim 9 (currently amended): A method for preparing streaming media received over a non-deterministic delay network at a client device for playback or distribution which comprises ~~the steps of~~:

receiving the streaming media at the client device;

determining a measure of an arrival rate and a measure of a data consumption rate of the received streaming media;

determining a measure of mismatch between the arrival measure and the consumption measure; and

utilizing time-scale modification to mitigate the effects of the mismatch;

wherein the arrival rate is determined by monitoring data arrival times and data packet sizes.

Claim 10 (currently amended): A method for playback of streaming media received over a non-deterministic delay network at a client device which comprises ~~steps of~~:

receiving the streaming media at the client device in a buffer;

playing back the streaming media;

determining a measure of an arrival rate and a measure of a data consumption rate of the received streaming media;

determining a time-scale modification playback rate considering one or more of the measure of arrival rate, the measure of a data consumption rate, and user input time-scale modification playback rate requests;

utilizing time-scale modification to mitigate underflow or overflow in the buffer, or disruption in playback; and

providing an indication of a current time-scale modification playback rate to the user.

Claim 11 (currently amended): The method of claim 10 which further comprises ~~steps of~~:

providing an indication of a user requested time-scale modification playback rate.

Claim 12 (currently amended): The method of claim 10 wherein ~~the step of~~ playing back comprises associating a time-scale modification playback rate with each entry in a playback buffer queue.

Claim 13 (original): The method of claim 10 wherein the indication comprises a function of recent time-scale modification playback rates.

Claim 14 (currently amended): The method of claim 10 wherein the step of utilizing ~~comprising~~ comprises ignoring or modifying the user input time-scale modification playback rate when it would interfere with providing continuous playback.

Claim 15 (currently amended): A method for preparing streaming media received over a non-deterministic delay network at a client device for playback or distribution which comprises ~~the steps of~~:

receiving the streaming media at the client device;
determining a measure of an arrival rate and a measure of a data consumption rate of the received streaming media;
determining a measure of mismatch between the arrival measure and the consumption measure; and
utilizing time-scale modification to mitigate ~~the~~ effects of the mismatch;
wherein the step of utilizing comprises determining a maximum time-scale modification playback rate that can be used over a ~~reporting~~ time interval without draining a buffer that receives the streaming media.

Claim 16 (original): The method of claim 15 wherein the maximum time-scale modification playback rate is determined as a function of the arrival measure, the consumption measure, an amount of data in the buffer, and the time interval.

Claim 17 (currently amended): A method for preparing streaming media received over a non-deterministic delay network at a client device for playback or distribution which comprises ~~the steps of~~:

receiving the streaming media at the client device;
determining a measure of an arrival rate and a measure of a data consumption rate of the received streaming media;
determining a measure of mismatch between the arrival measure and the consumption measure; and
utilizing time-scale modification to mitigate ~~the~~ effects of the mismatch;
wherein the step of utilizing comprises determining a minimum time-scale modification playback rate that can be used over a ~~reporting~~ time interval without overflowing a buffer that receives the streaming media; wherein the minimum time-scale modification playback rate is determined as a function of the arrival measure, the consumption measure, an amount of data in the buffer, and the time interval.

Claim 18 (currently amended): A method for playback of streaming media received over a non-deterministic delay network at a client device which comprises ~~steps of~~:

receiving the streamlining media at the client device, which client device includes a CPU;

playing back the streaming media;

determining a measure of CPU availability;

determining a time-scale modification playback rate as a function of the measure of CPU availability; and

utilizing time-scale modification to prepare the streaming media for playback.

Claim 19 (new): A method of presenting streaming media comprising:

determining a short-term playback system media data buffer fill rate;

determining a short-term playback system media data consumption rate;

determining a short-term sustainable playback rate that balances the short-term playback system media data buffer fill rate and the short-term playback system media data consumption rate;

determining a time-scale modification rate no greater than the sustainable playback rate; and

setting a playback system presentation rate to the time-scale modification rate.

Claim 20 (new): A method of playback of media data comprising:

receiving media data;

determining a short-term network bandwidth estimate;

determining a playback rate that reduces a media data playback rate to be less than or equal to the short-term network bandwidth; and

setting a current media playback system presentation rate to the playback rate.

Claim 21 (new): The method of claim 20 wherein receiving comprises receiving the media data over an interval at a rate that is lower than a rate for a previous interval.

Claim 22 (new): The method of claim 21 wherein the media data comprises an entire presentation.

Claim 23 (new): The method of claim 20 wherein receiving comprises receiving the media data without modification at a reduced rate over an interval, the reduced rate being lower than a rate for another interval.

Claim 24 (new): The method of claim 23 wherein receiving comprises:
receiving the media data over the interval with increased intervals between
portions of the media data.

Claim 25 (new): The method of claim 19 further comprising:
receiving the media data unmodified; and
determining includes reducing the short-term sustainable playback system
presentation rate.

Claim 26 (new): The method of claim 19 which further comprises:
time-scale modifying audio to increase a presentation length of a unit of audio
content;
linking a current media presentation time to the time-scaled audio; and
basing a presentation time of all non-audio media content on the current media
presentation time.

Claim 27 (new): The method of claim 19 wherein determining the short-
term sustainable playback rate includes using a user-requested rate.

Claim 28 (new): The method of claim 27 wherein maximum playback rates
may be slower than the user-requested rate.

Claim 29 (new): A method of presenting streaming media data comprising:
estimating a short-term available network bandwidth;
determining a presentation rate no larger than the short-term available network
bandwidth;
determining a time-scale modification rate no greater than the presentation rate;
and
setting a media playback system presentation rate to the time-scale modification
rate.

Claim 30 (new): The method of claim 29 wherein determining a presentation
rate comprises determining a maximum presentation rate compatible with the short-term
available network bandwidth.

Claim 31 (new): A client apparatus for preparing streaming media received over a non-deterministic delay network for playback or distribution which comprises:
a buffer which stores data corresponding to the streaming media; and
a rate determiner that:
determines a time-scale modification playback rate over an interval in response to information concerning the data in the buffer; and
transmits a network time-scale modification playback rate over a network.

Claim 32 (new): The client apparatus of claim 31 which further comprises a user interface which receives a user requested time-scale modification playback rate; wherein:
the rate determiner determines a time-scale modification playback rate over an interval in response to the information and the user requested time-scale modification playback rate.

Claim 33 (new): The client apparatus of claim 31 wherein:
the information is an amount of data in the buffer.

Claim 34 (new): The client apparatus of claim 31 wherein:
the information is a measure of mismatch between a measure of an arrival rate and a measure of a data consumption rate of the received streaming media.

Claim 35 (new): The client apparatus of claim 34 wherein:
the arrival measure is a function of an arrival rate of data in the buffer; and
the consumption measure is a function of a use rate of data from the buffer.

Claim 36 (new): The client apparatus of claim 35 wherein:
the arrival rate is determined using time-stamps for arriving data.

Claim 37 (new): The client apparatus of claim 35 wherein:
the arrival rate is determined using data arrival times and data packet sizes.

Claim 38 (new): The client apparatus of claim 31 wherein the network time-scale modification playback rate is the time-scale modification playback rate.

Claim 39 (new): The client apparatus of claim 31 which further comprises:
a decoder that, in response to data from the buffer and a data time-scale modification playback rate, time-scale modifies the data; wherein:

the network time-scale modification playback rate is 1 or the time-scale modification playback rate; and

the data time-scale modification playback rate is the time-scale modification playback rate or 1, respectively.